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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/522,059

01/20/2005

Jun Shinozaki

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EXAMINER

DHINGRA, RAKESH KUMAR

ART UNIT

PAPER NUMBER

1792

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DELIVERY MODE

10/14/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/522,059	<b>Applicant(s)</b> SHINOZAKI ET AL.	
	<b>Examiner</b> RAKESH DHINGRA	<b>Art Unit</b> 1792	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 August 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Drawings***

Figures 9 (a), 9 (b) should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

#### **Content of Specification**

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) The Names Of The Parties To A Joint Research Agreement: See 37 CFR 1.71(g).
- (e) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

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- (f) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
- (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
  - (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (g) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (h) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (i) **Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.**
- (j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations

to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).

- (k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (l) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

In this case, the Brief Description of Drawings does not include separate brief description of each view of Figures 3 (a), 3 (b) and Figures 9 (a), 9 (b) as required in terms of 37 CFR 1.74 [MPEP 608.01 (f)]

### ***Response to Arguments***

Applicant's arguments with respect to claim 1-9 have been considered but are moot in view of the new ground(s) of rejection. Applicant has amended claims 1, 4 by adding new limitations like, “an unobstructed path exists from said source of deposition material to a top surface of said material”.

Claims 1-9 are now pending and active.

New reference by Yamazaki et al (US 6,776,847) when combined with admitted prior art reads on amended claims 1, 4 limitations as explained below. Accordingly claims 1, 4 and 8 have been rejected under 35 USC 103 (a) as explained below. Balance claims 2, 3 and 5-7, 9 have also been rejected under 35 USC 103 (a) as explained below.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 1, 4, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art in view of Yamazaki et al (US 6,776,847).**

Regarding Claims 1, 4, 8: Admitted prior art teach a method for manufacturing a substrate by vapor deposition, comprising:

providing a substrate holder 1 above a source of deposition material, the substrate holder 1 including:

a first frame 2 for holding a substrate 3 of the plasma display panel, said first

frame holding the substrate 3 has a protrusion extending from below a bottom surface of the substrate 3 along a side surface of the substrate without being superimposed over the top surface of the substrate; and

a second frame 2 having an opening 4, the protrusion between the substrate 3 and the opening 4 so that the substrate 3 is on one side of the protrusion and the opening 4 is on the other side of the protrusion and an unobstructed path exists from said source of deposition material (through the frame openings 4) to a top surface 3b of the said substrate 3;

providing the plasma display panel 3 which is held by the substrate holder 2 for deposition;

spraying said deposition material onto said bottom surface 3a of said substrate 3 from below the substrate [e.g. Figs. 9(a), 9 (b) and page 2, line 11 to page 3, line 5]. Further, the method shall obviously permit an additional amount of the deposition material to flow through opening 4 (where no substrate is installed) from below the substrate.

Admitted prior art teaches the substrate is deposited on its lower surface 3a, but does not explicitly teach a source of deposition material, and also does not teach that the protrusion extends to a height above the substrate and is greater than a height of the substrate.

Yamazaki et al teach a method of film deposition on a display device comprising a deposition chamber 1503, a crucible 1506 (deposition source) and a substrate holder (similar to holder 12b in Fig. 1) with a protrusion for holding a substrate 1501 on which a film is to be deposited. Yamazaki et al further teach that the protrusion on the substrate holder extends to a height above the substrate and is greater than a height of the substrate (e.g. Fig. 15 and col. 46, line 20 to col. 47, line 52). Yamazaki et al in Figure 15 shows that the protrusion of the substrate holder has a height greater than the substrate 1501. It would be obvious to keep the height of the

protrusion greater than the substrate height to control any deposition products from depositing on the backside of the substrate during cleaning operation.

Therefore it would have been obvious to one of ordinary skills in the art at the time of the invention to provide the protrusion in the substrate holder that extends to a height above the substrate and is greater than a height of the substrate as taught by Yamazaki et al in the apparatus of admitted prior art to control any deposition products from depositing on the backside of the substrate.

**Claims 2, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art in view of Yamazaki et al (US 6,776,847) as applied to claims 1, 4 and 8 and further in view of Meyyappan (US 2004/0083976).**

Regarding Claims 2, 5: Admitted prior art in view of Yamazaki et al teach the height of protrusion being greater than height of substrate but do not teach the height of protrusion is between 1-100 mm.

Meyyappan teaches a deposition apparatus and method for processing a substrate 26 wherein a ring 30 is provided (substrate support) around the substrate to prevent coating on backside of the substrate. Meyyappan further teaches that the ring 30 has an edge shielding portion 36 whose height is optimized to prevent the substrate from sliding-off the substrate support (Fig. 2 and para. 0008, 0012, 0016, 0021).

Therefore it would have been obvious to one of ordinary skills in the art at the time of the invention to optimize the height of the protrusion of the substrate holder as taught by Meyyappan in the method of admitted prior art in view of Yamazaki et al to provide support to the substrate and control deposition on backside of the substrate.

In this connection the courts have ruled:



It would have been obvious to one having ordinary skill in the art to have determined the optimum value of a cause effective variable through routine experimentation in the absence of a showing of criticality. *In re Woodruff*, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

**Claims 3, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art in view of Yamazaki et al (US 6,776,847) as applied to Claims 1 , 4, 8 and further in view of Hiroki et al (US 5,374,147).**

Regarding Claims 3, 6: Admitted prior art in view of Yamazaki et al teach all limitations of the claim including substrate holder (frame) 1 for holding substrate, but do not teach holding means including supporting means and positioning means.

Hiroki et al teach an apparatus and method for supporting a substrate 2 by a frame 73 and where the frame comprises support means 88 and positioning means (83, 84 with stoppers 85, 86) for positioning the substrate 2 in a planar direction, wherein the substrate is held by fitting the substrate to the positioning means (83-86) and placing the substrate on the support means 88 (e.g. Fig. 12 and col. 10, lines 13-63).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use frame with support means and positioning means as taught by Hiroki et al in the apparatus and method of Admitted prior art in view of Yamazaki et al to ensure correct positioning of the substrate.

**Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art in view of Yamazaki et al (US 6, 776, 847) as applied to Claims 1, 4, 8 and further in view of Won et al (US 6,355,108).**

Regarding Claim 7: Admitted prior art in view of Yamazaki et al teach all limitations of the claim including first frame 1 for holding substrate, but do not teach first frame includes a plurality of tabs separated from each other which extend below the bottom surface of the substrate.

Won et al teach a deposition apparatus and method comprising a frame 22 with plurality of tabs 26. Won et al also teach that the tabs 26 support the substrate 28 on the deposition face and are shaped to accommodate the substrate 28, and comprise protruding contact surfaces for stabilizing a substrate on a support member during processing (e.g. Fig. 3, 4 and col. 5, line 25 to col. 6, line 35) [since applicant's specification does not explicitly describe any "tab", examiner has interpreted that the plurality of tabs as claimed refer to "Support 6a" in Fig. 6 – applicant is invited to confirm this]. Further, though, Won et al do not explicitly teach the tabs extend below the bottom surface of the substrate (during processing), the tabs 26 as taught by Won et al would obviously extend below the substrate in case frame 22 was used upside down with a deposition source disposed below the substrate.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the first frame with a plurality of tabs as taught by Won et al in the apparatus and method of Admitted prior art in view of Yamazaki et al to stabilize the substrate on the frame during processing.

**Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art in view of Yamazaki et al (US 6,776,847) as applied to Claims 1, 4, 8 and further in view of Yang et al (US 6,397,776).**

Regarding Claim 9: Admitted prior art in view of Yamazaki et al teach all limitations of the claim except the protrusion curves away from the substrate.

Yang et al teach a method for deposition on a substrate comprising a two source array 15 for deposition on substrate 12. Yang et al further teach that a curved substrate holder is used for simulating curved surfaces for curved substrates (e.g. Fig. 1 and col. 10, lines 1-15). It would be obvious to use substrate holder with a protrusion that curves away from the substrate as per teaching of Yang et al to enable support substrates with curved surfaces.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the substrate holder with a protrusion that curves away from the substrate as taught by Yang et al in the apparatus and method of Admitted prior art in view of Yamazaki et al to enable support substrates with curved surfaces.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAKESH DHINGRA whose telephone number is (571)272-5959. The examiner can normally be reached on 8:30 - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. D./  
Examiner, Art Unit

/Karla Moore/  
Primary Examiner, Art Unit 1792